



JPW

PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number 10/763,514

Filing Date 1-22-04

First Named Inventor Susan G. Yan et al.

Art Unit 1745

Examiner Name Ben Lewis

Attorney Docket Number GP-303570

### ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> After Allowance Communication to TC
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input checked="" type="checkbox"/> Amendment/Reply	<input type="checkbox"/> Petition	<input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Terminal Disclaimer	<input checked="" type="checkbox"/> Other Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Request for Refund	Return Receipt Postcard
<input type="checkbox"/> Information Disclosure Statement	<input type="checkbox"/> CD, Number of CD(s) _____	
	<input type="checkbox"/> Landscape Table on CD	

#### Remarks

Applicant believes no fee to be due for the attached filing, however, should additional fees be due in order to prevent the abandonment of this application, please consider this as authorization to charge Deposit Account No. 501612 (Warn, Hoffmann, Miller & LaLone, P.C.) for any such fees due. A duplicate copy of this document is enclosed for this purpose.

### SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Warn, Hoffmann, Miller & LaLone, P.C.		
Signature			
Printed name	John A. Miller		
Date	8-8-06	Reg. No.	34985

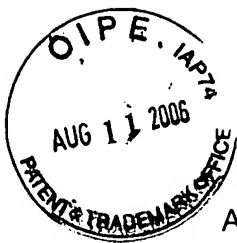
### CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	John A. Miller - Reg. No. 34985	Date	8-8-06

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/763,514  
Filing Date: January 22, 2004  
Applicant: Susan G. Yan et al.  
Group Art Unit: 1745  
Examiner: Ben Lewis  
Title: DURABLE MEMBRANE ELECTRODE ASSEMBLY  
CATALYST COATED DIFFUSION MEDIA WITH NO  
LAMINATION TO MEMBRANE  
Attorney Docket: GP-303570

---

Mail Stop Amendment  
Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO OFFICE ACTION**

This is a Response to the Office Action mailed July 25, 2006, to which a response is due by October 25, 2006. Claims 15-18 remain pending in this application. These claims stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,444,341 issued to Yen et al. in view of U.S. Patent No. 6,893,763 issued to Fan et al. In view of the following remarks, this rejection is traversed, and reconsideration of this application is respectfully requested.

Independent claim 15 claims a method for fabricating a membrane electrode assembly that includes depositing a cathode side catalyst layer on a cathode side diffusion media layer; spraying an ionomer layer on the cathode side catalyst layer; depositing an anode side catalyst layer on an anode side diffusion media layer; spraying an ionomer layer on the anode side catalyst layer; positioning the diffusion media layers on opposite sides of a membrane; and operating the fuel cell to cause the diffusion media

layers to form to the membrane so that the diffusion media layers do not need to be bonded to the membrane prior to operating the fuel cell.

U.S. Patent No. 6,444,341 issued to Yen discloses a polymer electrolyte membrane assembly for a fuel cell that includes depositing a catalyst on a carbon paper electrode, coating the electrode with a liquid electrolyte polymer and bonding the electrode to an electrolyte membrane by a hot-pressing operation. (Column 6, lines 48-67).

Yen et al. does not appear to teach or suggest depositing a catalyst layer on a diffusion media layer, spraying an ionomer layer on the catalyst layer and then forming the diffusion media layer including the catalyst to a membrane through the operation of the fuel cell. Contrary, Yen et al. deposits the catalyst on the membrane, and forms the electrode including the catalyst to the membrane by a hot-pressing step.

U.S. Patent No. 6,893,763 issued to Fan et al. discloses applying a catalyst including an ionomer directly to a membrane, and then assembling the membrane electrode assembly including the catalyst deposited membrane and gas diffusion layers. Fan et al. states, “[b]ecause the catalyst ink is directly deposited on the membrane, no hot press step is necessary to fabricate the membrane electrode assembly (MEA).” (Column 5, lines 4-6).

Applicant submits that Fan et al. does not provide the teaching missing from Yen et al. to make Applicant’s independent claim 15 obvious. As discussed above, Fan et al. only teaches depositing the catalyst directly to the membrane, and not to the diffusion media layers. In Applicant’s invention, the catalyst is applied to the diffusion media layers, and then the diffusion media layers are bonded to the membrane through operation of the fuel cell. Fan et al. does not teach bonding the diffusion media layers to the membrane because this would not be required as the catalyst is already on the membrane, and not on the diffusion media layer. Contrary, Fan et al. shows a sub-gasket

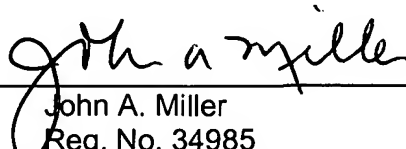
16 and 17 between the catalyst layers 14 and 15 and the diffusion media layers, clearly showing that the diffusion media layers are not bonded to the membrane.

The Examiner is respectfully reminded of the requirements for a *prima facie* case of obviousness. Particularly, as set forth in MPEP 2143, in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Further, the prior art references must teach or suggest all of the claim limitations.

Applicant submits that the combination of Yen et al. and Fan et al. do not establish a *prima facie* case of obviousness because there is no teaching in either of these references of depositing a catalyst layer on a diffusion media layer, then spraying an ionomer layer on the catalyst layer, then positioning the diffusion media layer adjacent to a membrane, and then bonding the diffusion media layer to the membrane through the operation of the fuel cell. Therefore, it is respectfully requested that the §103(a) rejection be withdrawn.

It is now believed that this application is in condition for allowance. If the Examiner believes that personal contact with Applicant's representative would expedite prosecution of this application, he is invited to call the undersigned at his convenience.

Respectfully submitted,

By:   
John A. Miller  
Reg. No. 34985  
Phone: (248) 364-4300

General Motors Corporation  
300 Renaissance Center  
P.O. Box 300  
Detroit, MI 48265-3000  
(313) 665-4708

Dated: 8/8/06